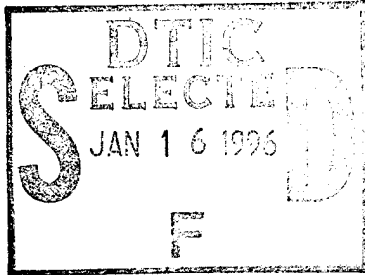


# REPORT DOCUMENTATION PAGE

Form Approved  
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE <i>3 Nov 95</i>		3. REPORT TYPE AND DATES COVERED	
4. TITLE AND SUBTITLE <i>The First Allied Airborne Army In Operation Varsity: Applying The Lessons of Arnhem</i>				5. FUNDING NUMBERS	
6. AUTHOR(S)  <i>John J. Abbatiello</i>					
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  <i>King's College London</i>				8. PERFORMING ORGANIZATION REPORT NUMBER  <i>95-133</i>	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) DEPARTMENT OF THE AIR FORCE AFIT/CI 2950 P STREET, BLDG 125 WRIGHT-PATTERSON AFB OH 45433-7765				10. SPONSORING/MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES					
12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for Public Release IAW AFR 190-1 Distribution Unlimited BRIAN D. GAUTHIER, MSgt, USAF Chief, Administration				12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words)  <div style="text-align: center;">  </div>					
14. SUBJECT TERMS				15. NUMBER OF PAGES <i>36</i>	
				16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT		18. SECURITY CLASSIFICATION OF THIS PAGE		19. SECURITY CLASSIFICATION OF ABSTRACT	
				20. LIMITATION OF ABSTRACT	

19960104 153

KING'S COLLEGE LONDON

THE FIRST ALLIED AIRBORNE ARMY IN  
OPERATION VARSITY:  
APPLYING THE LESSONS OF ARNHEM

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A THESIS SUBMITTED TO  
THE FACULTY OF THE DEPARTMENT OF  
WAR STUDIES

IN CANDIDACY FOR THE DEGREE OF  
M.A. WAR STUDIES

SCHOOL OF HUMANITIES

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BY  
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LONDON, UK

JUNE 1995

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## ABSTRACT

This extended essay describes the Allied planning and preparation for the final and most successful large-scale airborne operation of World War Two: Operation VARSITY. Often overlooked by military historians, this operation was critical to the success of Montgomery's Rhine crossing offensive in March 1945. Operation VARSITY is especially interesting because the First Allied Airborne Army, the responsible headquarters for this assault, made a determined effort to avoid the errors committed during Operation MARKET-GARDEN. The underlying theme of this essay is that Allied planners applied the painful lessons of Arnhem to almost every stage of planning for Operation VARSITY. Haunted by the decimation of the British 1st Airborne Division near Arnhem Bridge, First Allied Airborne Army commanders instituted changes in organization, command and tactics which secured the success of this final operation.

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## CHAPTER 1

### INTRODUCTION: THE FIRST ALLIED AIRBORNE ARMY

By the spring of 1945 airfields in the United Kingdom and liberated France teemed with Allied aircraft. In addition to the tactical fighters and bombers accompanying the advancing armies on the continent, strategic bombers and their escorts continued their assault on the enemy homeland. Interspersed between these huge combat organizations were the air transport units of the First Allied Airborne Army. As its name suggests, this army contained both the elite airborne divisions of the Allied Expeditionary Forces and a considerable number of transport aircraft to carry them into battle and keep them supplied. During its eight-month existence, the First Allied Airborne Army would execute two large-scale airborne assaults, Operation MARKET and Operation VARSITY.

In 1940 the Germans used parachute and glider infantry with great success in Scandinavia and the Low Countries. The following year witnessed the successful yet costly assault on Crete. Although the British and American military establishments conducted experiments with airborne forces before the war, it was not until 1942 that the Allies had a substantial pool of trained parachute and glider infantry ready for action. Allied commanders were attracted to the 'vertical envelopment' capability of these new units, which were employed - with varying degrees of success - in the TORCH landings, Sicily and Italy.<sup>1</sup> In 1944 British and American airborne drops supported both the Normandy invasion and ANVIL-DRAGOON landings on the southern coast of France.

Beginning in February 1944 the United States War Department, specifically Generals Marshall and Arnold, were pressing General Eisenhower for greater strategic employment of airborne units - that is, drops deep within enemy territory. The Supreme Commander agreed in principle and soon recognized the need for organizing ground and air forces under one headquarters for planning, command and coordination. As a result, the First Allied Airborne Army was established on 8 August

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<sup>1</sup> US Army Air Forces Board, 'Long Range Study of Airborne Operations,' 29 April 1944, 10.

1944.<sup>2</sup> The ground combat units assigned to the new army included the United States 82nd, 101st and 17th Airborne Divisions as well as the British 1st and 6th Airborne Divisions with the Polish Independent Airborne Brigade attached. The British Airborne Corps and US XVIII Airborne Corps headquarters organizations also fell under First Allied Airborne Army operational control. Finally, air transport units included the US IX Troop Carrier Command and 38 Group, Royal Air Force. The RAF's 46 Group, which carried cargo and personnel between Britain and the continent, would also be available when required.

Eisenhower wanted an American lieutenant general from the Army Air Force to command the First Allied Airborne Army.<sup>3</sup> Allied military leaders chose Lieutenant General Lewis H. Brereton to fill the position with Lieutenant General F.A.M. Browning, commander of British Airborne Corps, as his deputy. Brereton, whose Far East Air Force was nearly destroyed in the Philippines, had gained experience with both organizing new air headquarters and coordinating airborne operations. After serving in senior positions in India and the Middle East, Brereton assumed command of the US Ninth Air Force where he supervised air support of the Normandy beachhead and the adjacent American airborne landings.

The First Allied Airborne Army was a unique unit in an organizational sense because it was both a *combined* and *joint* headquarters on the army level. It was a combined command because it contained forces of different nations - British, American and Polish. Also, the First Allied Airborne Army was a joint command since elements of different services - ground and air - came together under one headquarters. It is interesting to note that this organization was not an ad hoc unit created for a specific operation. Unlike naval task forces or amphibious commands, it was a permanent army headquarters in the Allied forces, and in this case directly subordinate to the Supreme Headquarters Allied Expeditionary Forces. In any operation, the airborne troops would come under the command of the advancing ground force as soon as contact was made. Airborne units were to be withdrawn

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<sup>2</sup> W.F. Craven and J.L. Cate (eds.), *The Army Air Forces In World War II*, Vol. III (Chicago: University of Chicago Press, 1951), 596.

<sup>3</sup> *Ibid.*, 244.

from combat within days of their initial employment, however in practice they often stayed in the frontline for weeks or even months before being relieved.

Allied airborne divisions normally consisted of three or four brigades (or regiments in the US Army). Two or three of these sub-units usually contained parachute infantry, while the last consisted of glider-borne assault troops. Divisional headquarters, a small artillery contingent and jeeps also normally arrived via glider landings. Once on the ground, the airborne division was a self-contained fighting force, but it relied on air resupply for its food and ammunition until contact with friendly ground forces was achieved.

Major General Paul L. Williams' IX Troop Carrier Command formed the bulk of First Allied Airborne Army's airlift capability. By March 1945 this force consisted of three wings and a Pathfinder group, totaling more than sixty squadrons of the Douglas C-47 'Skytrain' (or 'Dakota' in RAF terminology) and the new Curtiss C-46 'Commando'.<sup>4</sup> Both aircraft were able to drop paratroops or pull gliders. The RAF's 38 Group contributed eleven squadrons containing mostly modified Stirling and Halifax bombers which performed the glider-tug role. The 'Dakotas' of 46 Group added six more squadrons to the total.<sup>5</sup>

By the time the First Allied Airborne Army was established, the airborne troops and their air transport units had already gained a great deal of combat experience. Prior to 1944, airborne organizations were normally employed in direct support of amphibious operations. As a general rule, drops were conducted at night in order to avoid aircraft losses to flak and achieve maximum surprise. The parachute and glider infantry protected the flanks of the landing force and disrupted enemy attempts to reinforce their defenses. This method of employment culminated in Operation NEPTUNE where three Allied airborne divisions landed astride the Normandy beachhead during the early hours of 6 June 1944. Although many of the drops were widely dispersed, this first multi-divisional assault

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<sup>4</sup> The C-46, with double the carrying capacity of a C-47, was not yet in service during Operation MARKET-GARDEN. Over one hundred C-46 aircraft participated in Operation VARSITY.

<sup>5</sup> L.F. Ellis with A.E. Warhurst. *Victory in the West, Volume II: The Defeat of Germany*. History of the Second World War: United Kingdom Military Series, ed. Sir James Butler (London: HMSO, 1968), 391-392.



succeeded in hindering German reinforcement attempts and seizing vital choke points in order to protect the flanks of Operation OVERLORD.

After canceling proposed drops to support the Seine crossing and, later, to seize the Pas-de-Calais rocket sites,<sup>6</sup> Eisenhower agreed to General Montgomery's planned assault into Holland in September 1944. Operation MARKET-GARDEN would be the first combat operation for Brereton's First Allied Airborne Army, and it would also be the largest airborne operation up to that date. Parachute and glider infantry would seize vital river and canal crossings in combination with a narrow front assault by a mechanized corps aiming to eventually cross the Lower Rhine at Arnhem. While not completely successful, MARKET-GARDEN demonstrated the potential combat power of a complete airborne army.

After the Battle of the Bulge and subsequent 'close up to the Rhine' operations, Allied commanders began planning the final phase of the European war. Operation VARSITY, the airborne component of the northern Rhine crossing offensive, was the second and final large-scale operation of the First Allied Airborne Army. This operation would prove to be the most successful Allied airborne assault of the war and was crucial to Montgomery's triumphant crossing of the historical barrier into Germany. The primary reason for First Allied Airborne Army's success was that both airborne soldiers and troop carrier pilots learned many lessons from prior operations, especially from Arnhem, and applied these lessons at almost every stage of planning for the VARSITY assault. After describing the problems encountered during Operation MARKET-GARDEN, this essay will demonstrate how Allied commanders instituted changes in organization, command, and force employment to effect what may be called the greatest airborne victory of World War Two.

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<sup>6</sup> Forrest C. Pogue, *George Marshall: Organizer of Victory* (New York: Doubleday, 1973), 423.

## CHAPTER 2

### OPERATION MARKET-GARDEN AND ITS AFTERMATH

#### Operations in Holland

By the fall of 1944, the First Allied Airborne Army's five airborne divisions were Eisenhower's only remaining strategic reserve for the Allied advance across France. At a commander's conference at Brussels on 10 September, Field Marshal Montgomery secured Eisenhower's support in using this combat-tested force for a 'deep thrust' operation which would gain a bridgehead over the Rhine in Holland. This move would outflank the Siegfried line and provide a buffer zone for the future defense of Antwerp.<sup>1</sup> Montgomery would receive most of the Allied Expeditionary Force's logistical support while the American armies further south would have to adopt a defensive stance. If successful, Operation MARKET-GARDEN, as the operation was named, would open the way for an armored thrust into the 'heart of Germany.'

Operation MARKET-GARDEN represented a doctrinal change in the use of airborne forces. Horrocks' British XXX Corps, part of Dempsey's British Second Army, would advance on a very narrow front across a corridor, or 'airborne carpet,' of three airborne divisions. The First Allied Airborne Army, under operational control of Montgomery's Twenty-first Army Group, would employ parachute and glider infantry to take and hold key bridges in Holland enabling XXX Corps' Guards Armored Division to advance along one highway until they reached Arnhem, sixty-four miles behind enemy lines. Thus, the use of airborne troops to vertically envelop enemy forces was transformed from the tactical level to the strategic level. The road bridge at Arnhem would provide a bridgehead across the final obstacle into Germany: the Rhine River.

Operation MARKET-GARDEN was a very ambitious undertaking. The US 101st Airborne Division would land at the southernmost portion of the sixty-four mile corridor. It would be

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<sup>1</sup> Dwight D. Eisenhower, *Crusade in Europe* (New York: Doubleday, 1948), 306-307.

responsible for seizing the crossings between Eindhoven and Veghel. The US 82nd Airborne Division would be charged with taking the Grave bridge over the Maas River and the bridge over the Waal at Nijmegen. The British 1st Airborne Division had the most difficult task: in General Browning's words, to take 'Arnhem bridge - and hold it.'<sup>2</sup> Prior to the link up with XXX Corps, Browning's British Airborne Corps headquarters would oversee the execution of Operation MARKET, the airborne portion of the overall operation. To ensure accurate delivery of paratroops and gliders at the

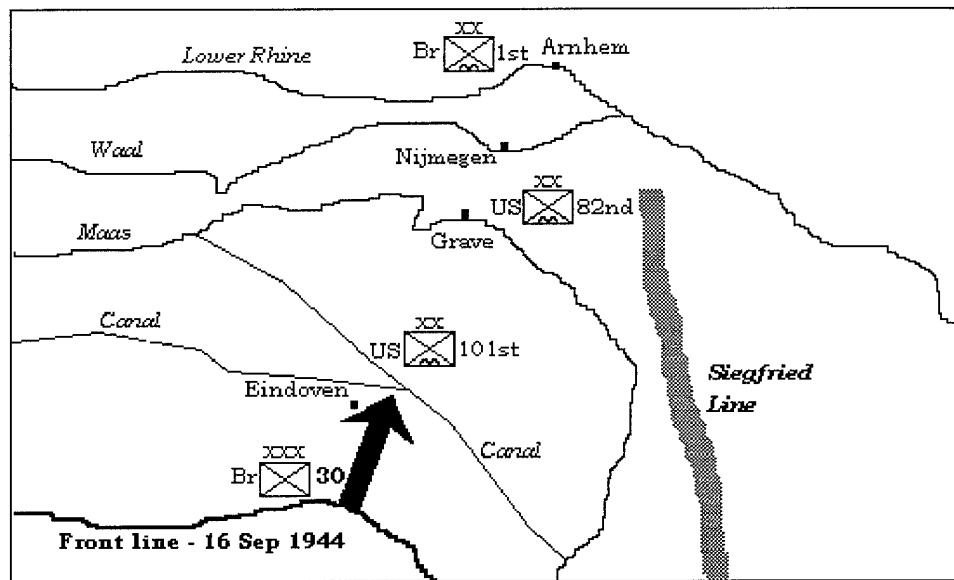


Figure 1. Operation MARKET-GARDEN, September 1944.

drop zones and to counter the formidable German night-fighter threat, all drops would be made in daylight. Meanwhile, Operation GARDEN would open at the Meuse-Escaut Canal bridgehead with a ground attack by the British Guards Armored Division closely followed by the British 43rd and 50th Infantry Divisions. The ground forces were scheduled to relieve the British airborne troops in Arnhem within two days of the initial drops.

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<sup>2</sup> Quoted in Geoffrey Powell, *The Devil's Birthday: The Bridges at Arnhem, 1944* (New York: Franklin Watts, 1984), 30.

The operation opened on 17 September 1944, after only one week of planning. All of the daylight jumps were successful with little initial resistance. The advancing Guards Armored Division ran into stiff opposition and by the end of the first day was still six miles short of Eindhoven and the 101st Airborne, their first day objective. The requirement to rebuild the demolished Son bridge caused additional delays. Further north, the 82nd Airborne lacked sufficient forces to take their main objective, the Nijmegen road bridge over the Waal River. After obtaining boats and armor support from XXX Corps, the 82nd successfully took the bridge from both ends by sending a *coup de main* party across the river on 20 September.

Meanwhile, the British 1st Airborne Division discovered that the 9th and 10th SS Panzer Divisions were refitting outside Arnhem. As a result of the ensuing German counterattack, only one battalion of paratroops ever reached the Arnhem road bridge. The remainder of the division found themselves trapped in a pocket near the drop zones west of the town. Poor weather conditions and communications problems severely hampered reinforcement and resupply efforts. By 20 September, the remnants of the single battalion at the northern end of the bridge had surrendered and the crossing over the Rhine was completely back in German hands. Lieutenant Colonel John Frost's 2 Parachute Battalion held this position for three days and four nights, far longer than the planned forty-eight hours. On 22 September, leading units of XXX Corps reached Driel, a village on the south side of the Rhine directly across from 1st Airborne's defensive perimeter. After attempts to reinforce the pocket failed, the survivors of General Urquhart's division withdrew to the south side of the Rhine during the night of 25/26 September. Horrocks' knife-like thrust was stopped in its tracks at Arnhem. Operation MARKET-GARDEN created a deep salient in the German lines, however the corridor was under almost constant counterattack during the battle. As a result, the 82nd Airborne Division lost approximately 1600 men while the 101st Airborne sustained over 2000 casualties.<sup>3</sup> Out of more than

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<sup>3</sup> Lieutenant General Lewis H. Brereton, *The Brereton Diaries*, (New York: William Morrow and Company, 1946), 358.

10,000 officers and men landed with the British 1st Airborne Division, 1400 of them were dead and 6000 were prisoners.<sup>4</sup>

### Operation MARKET-GARDEN: Success or Failure?

Book titles such as *A Bridge Too Far* and *A Drop Too Many* emphasize a general perception that Operation MARKET-GARDEN was a dismal failure. Although the British 1st Airborne Division gallantly held out for much longer than anticipated, the final objectives of crossing the Rhine at Arnhem and breaking into the North German Plain were never realized. This opinion may be widely held today, but in the immediate aftermath of the operation, many senior commanders considered the operation a partial success.

Although he admitted that the Rhine bridgehead was not secured, General Eisenhower believed Operation MARKET-GARDEN 'brought very positive and important advantages' to the Allied forces including the eventual establishment of a firm line along the Maas and Waal, better alignment of the Twenty-first Army Group front relative to the Twelfth Army Group, a defensive buffer zone for Antwerp and a valuable jumping off point for future Rhine crossing operations.<sup>5</sup>

In his cover letter preceding the First Allied Airborne Army's after-action report to Eisenhower, Lieutenant General Lewis Brereton actually considered his unit's mission a success:

The airborne mission in this operation was accomplished. Airborne troops seized the fifty mile corridor desired by the C-in-C, Northern Group of Armies [Montgomery], and held it longer than planned. The fact that the weight of the exploiting troops was insufficient to carry them past the last defile (Arnhem) in time to take advantage of the Airborne effort detracts in no way from the success achieved by the Airborne Forces.<sup>6</sup>

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<sup>4</sup> Casualty figures are approximate. Powell, *The Devil's Birthday*, 221- 224.

<sup>5</sup> Headquarters SHAEF. *Report by the Supreme Commander to the Combined Chiefs of Staff on the Operations in Europe of the Allied Expeditionary Force: 6 June 1944 to 8 May 1945* (London: HMSO, 1946), 84.

<sup>6</sup> Brereton, Cover Letter to HQ First Allied Airborne Army (FAAA), 'Report on Operations in Holland, September - November 1944,' 22 December 1944.

Congratulatory messages to Brereton from Generals Eisenhower, Marshall and Arnold confirmed the view that the airborne portion of the attack was generally considered successful.<sup>7</sup> In a personal letter to Brereton, for example, General Arnold reiterated that 'in sending my commendatory message to you I stated my pleasure at your success, *and I meant success.*'<sup>8</sup> Major General James Gavin represented the attitude of the troop carrier and airborne forces of First Allied Airborne Army when he wrote, 'There was no failure at Arnhem. If, historically, there remains an implication of failure it was the failure of the ground forces to arrive in time to exploit the initial gains of the [British 1st] airborne division.'<sup>9</sup>

Field Marshal Montgomery's view of the operation changed with the passage of time. In *Normandy to the Baltic*, published in 1947, he wrote, 'The battle of Arnhem was ninety per cent successful' since four major water crossings were taken.<sup>10</sup> However in his later memoirs, Montgomery considered Operation MARKET-GARDEN a failure on the whole because of the inability to reach Arnhem Bridge. He attributed this lack of success to four factors. First, he claimed that the operation was not 'regarded at Supreme Headquarters as the spearhead of a major allied movement.' Second, drop zones were too distant from the airborne units' objectives. Third, poor flying weather inhibited vital resupply and reinforcement of the airborne divisions. Finally, the location of two SS panzer divisions in Arnhem provided unexpected resistance to the lightly-armed British 1st Airborne.<sup>11</sup> Many factors contributed to XXX Corp's failure to cross the Rhine at Arnhem and the subsequent destruction of the British 1st Airborne Division. In addition to those considerations already mentioned, over-optimism and carelessness on the part of the planners as well as a chain of unfortunate coincidences certainly had a negative influence on the outcome of Operation MARKET-

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<sup>7</sup> HQ FAAA, 'Report on Operations in Holland,' 52. Includes excerpts of congratulatory telegrams from Eisenhower and Marshall.

<sup>8</sup> Brereton, *Diaries*, 364. Author's italics.

<sup>9</sup> Major General James Gavin, *Airborne Warfare* (Washington: Infantry Journal Press, 1947), 121.

<sup>10</sup> Field Marshal the Viscount Montgomery of Alamein, *Normandy to the Baltic* (London: Hutchinson, 1947), 149.

<sup>11</sup> Montgomery, *The Memoirs of Field Marshal the Viscount Montgomery of Alamein* (London: Collins, 1958), 296-297.

GARDEN.<sup>12</sup> However in general, both faulty troop carrier planning and the improper employment of airpower may be considered the primary defects of the operation.

#### Problems with the 'Air Plan'

Regardless of the overall outcome of Operation MARKET-GARDEN, there were definitely lessons to be learned by Allied military commanders, especially in the headquarters of the First Allied Airborne Army. Troop carriers, airborne soldiers and close support pilots may have encountered fewer problems in Operation MARKET had the air planning been more thorough and more realistic. Indeed significant flaws surrounded the initial and follow-on drops and resupply missions, tactical close air support and communications.

The first major problem stemmed from a lack of sufficient transport aircraft to drop all 35,000 airborne troops of the three divisions at once. General Paul Williams, IX Troop Carrier Command chief and overall transport force commander, had only 1750 Dakotas and tug aircraft at his disposal for Operation MARKET. Since he demanded that only one lift be flown each day, the airborne force would be flown into battle on three successive days. Although the RAF suggested flying two lifts per day, Williams feared this scheme would interfere with proper aircraft maintenance and lead to crew fatigue with a corresponding safety hazard.<sup>13</sup>

The consequences of this decision had a direct effect on the planning and execution of the ground phase of the operation. The primary advantage of an airborne assault lies in its surprise - the ability to do damage to the enemy before he can react. The failure to drop the maximum number of troops on the first day detracted from this advantage. Also, the already limited force from the first day's drop needed to set aside units to defend drop zones for subsequent landings. For example, transports lifted only two brigades of the British 1st Airborne Division to Arnhem on the first day of

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<sup>12</sup> Ellis, *Victory*, 50-51.

<sup>13</sup> Sebastian Cox, 'Air Power in Operation MARKET-GARDEN', *Air Chies* 39, no. 4 (April 1985): 152.

Operation MARKET. Since most of the Airlanding Brigade (glider-borne) remained behind to defend the landing zone, only the 1st Parachute Brigade was available to assault the Arnhem Bridge on the first evening.<sup>14</sup> Due to stiffening German resistance, only 600 of 1st Airborne's 10,000 men actually reached the bridge, the division's main objective.<sup>15</sup> Brigadier General Gavin of the US 82nd Airborne Division would not even attempt a first-day assault on the Nijmegen Bridge, his unit's main objective, until reinforced on subsequent days.<sup>16</sup>

Another problem, especially concerning the British 1st Airborne, arose from choosing drop zones too distant from the assigned objectives. Airborne divisional staffs and troop carrier headquarters shared the responsibility of selecting drop zones (for paratroops) and landing zones (for gliders) with the air units retaining the right of veto.<sup>17</sup> Since there was a large concentration of German flak artillery in the vicinity north of the Arnhem Bridge, the nearest suitable landing terrain for the 1st Airborne was located six to eight miles west of the bridge. To compensate for the long marching distance to the objective, a *coup de main* force of assault troops mounted on jeeps planned to seize the bridge within hours of landing and hold it until the remainder of 1st Parachute Brigade arrived on foot. The jeeps were subsequently ambushed at the start of their journey and never reached their objective. Although not as pronounced, the Americans also had problems with long distances between the drop and landing zones and their objectives.

The initial drop plan contained one final fundamental flaw. Since the drops were to be made over a three day period, the operation relied on good weather - at both the bases in England and the drop zones - throughout the entire operation. Considering the time of year, it was at best a tremendous risk to depend on such favorable conditions.

Another major problem with the air plan was the coordination of air support for the airborne troops once they were on the ground. In his article 'Air Power in Operation MARKET-GARDEN',

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<sup>14</sup> Martin Middlebrook, *Arnhem 1944: The Airborne Battle* (London: Viking, 1994), 114.

<sup>15</sup> Ellis, *Victory*, 52.

<sup>16</sup> Gavin, *Airborne Warfare*, 88.

<sup>17</sup> Cox, 'Air Power', 39: 4, 154.



Ministry of Defence historian Sebastian Cox explains that close air support for the airborne divisions failed for three reasons. First, planning coordination and communications between the 2nd Tactical Air Force (TAF) - which controlled the airspace above the Operation MARKET drops and was headquartered in Belgium - and various headquarters located in the United Kingdom were inadequate. As a matter of fact, poor weather prevented the 2nd TAF representative from flying to an important Operation MARKET-GARDEN planning conference. Second, radio equipment accompanying the 1st Airborne Division did not work properly preventing most air strike requests from reaching 2nd TAF. Only two VHF radio sets accompanied the 1st Airborne Division, and this equipment was destroyed by shellfire early in the battle. Finally, poor weather hampered 2nd TAF operations, especially from its makeshift, forward operating bases, during the nine day operation. On two days weather 'severely curtailed operations' and on four other days it was considered 'unsatisfactory'.<sup>18</sup>

A lack of coordination between headquarters resulted in an over-conservative air support plan. In general, 2nd TAF aircraft were grounded whenever either troop transport or resupply aircraft were in the battle area. This prohibition was designed to avoid confusion between 2nd TAF close support fighter bombers and the escorting fighters accompanying the transports. However, when weather delayed - or even canceled - transport launches from England, close air support aircraft on the continent were grounded until released by First Allied Airborne Army headquarters, a process which took a great deal of valuable time. As a result, 1st British Airborne at Arnhem rarely received any air support.<sup>19</sup> In his memoirs, Major General Urquhart recalls being 'baffled by the lack of fighter support' and mentions a meager supporting attack by a handful of British aircraft on 23 September, very late in the battle.<sup>20</sup>

The final problem with the Operation MARKET concerned the resupply arrangements. Because of severe enemy counterattacks, many resupply drop zones were overrun by the Germans.

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<sup>18</sup> Ibid., 39: 4, 154; and 39: 6, 229-230.

<sup>19</sup> Ellis, *Victory*, 53-54.

<sup>20</sup> Major General R.E. Urquhart, *Arnhem* (London: Cassell, 1958), 148 and 202.

Communication failures prohibited airborne units from changing these drop zones, and a large proportion of supplies were intercepted by the enemy. For example, on the fourth day of Operation MARKET the British 1st Airborne Division recovered only thirteen percent of the supply canisters dropped to them, while the US 82nd Airborne received eighty percent of their loads.<sup>21</sup>

Even the *Wehrmacht* realized the problems evident in Operation MARKET-GARDEN planning and execution. In November 1944 British troops captured an Army Group B report, dated 1 October 1944, which outlined the German view of the reasons for the operation's failure. The report criticized the slow build-up of airborne troops in the assault areas; the maximum force should have been dropped on the first day. Also, the Germans quickly recognized that cargo aircraft continued to fly the same routes during their resupply drops which helped anti-aircraft gunners inflict high casualties on the determined airmen. Finally, the Germans felt that the airborne forces initially overprotected their drop zones which left defending forces unopposed in organizing counterattacks.<sup>22</sup> Consequently, planning for future airborne operations was 'considerably influenced by the German appreciation of the mistakes at Arnhem' as mentioned in this captured report.<sup>23</sup>

#### Changes, Exercises and Training

The systematic operational studies and self-evaluations which followed Operation MARKET-GARDEN generated a series of positive changes in the First Allied Airborne Army. In addition to unit and headquarters movements, Brereton and his subordinate commanders implemented new communication systems and a high standard of training for both their ground and air organizations designed to ready the army for future large-scale airborne operations. The aim was to avoid past

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<sup>21</sup> John F. Fuller, 'MARKET-GARDEN: The Operation That Failed', *Airlift Operations Review* 2, no. 4 (October-December 1980): 28.

<sup>22</sup> HQ FAAA, Translation of 'Report on experience gained . . . in the western Arnhem sector,' 1 October 1944; and HQ No 38 Group RAF, 'Paper on Airborne Assault Operations', May 1945, Part III:37.

<sup>23</sup> *Ibid.*, III:52.

mistakes, and in early spring Montgomery would reap the benefits of employing this highly trained force in Operation VARSITY.

The British 1st Airborne Division was never fully reconstituted after Arnhem. The two American airborne divisions dropped during Operation MARKET remained in the front-line until mid-November. These units, along with the untried US 17th and veteran British 6th Airborne, were committed to repelling the German Ardennes Offensive while still training replacements. During the fall and winter, First Allied Airborne Army headquarters was tasked with planning possible airborne assaults on Berlin and Kiel.<sup>24</sup> Additionally, plans were drawn up in October for an American Rhine crossing near Wesel.<sup>25</sup>

The movement of air units and headquarters to the continent was designed to facilitate future operations. One American troop carrier wing, the 50th, moved to bases southwest of Paris in late September 1944. By late February 1945, the 53rd Troop Carrier Wing had established its five groups southeast of Paris. The RAF's 46 Group joined 38 Group in East Anglia, increasing its operating range substantially, while the last American troop carrier wing, the 52nd, divided its groups between East Anglian bases and new locations in northern France. All American airborne divisions remained in France, and the British 6th Airborne was located in England close to the RAF transport air bases.

Since most of the troop carrier units were moved to France, First Allied Airborne Army opened its new headquarters at Maison Lafitte, on the outskirts of Paris, on 18 February. This move facilitated communications with both the widely scattered air and ground units of Brereton's army and other major headquarters in the European Theater. Additionally, in anticipation of Operation VARSITY Brereton set up a forward headquarters **in the same building** as Headquarters 2nd Tactical Air Force in Brussels.

A technological change which greatly enhanced the operational effectiveness of the airborne divisions was the development of lightweight communication equipment. Radio equipment became

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<sup>24</sup> Brereton, *Diaries*, 370-371.

<sup>25</sup> John C. Warren, *Airborne Operations in World War II, European Theater* (Maxwell AFB, Alabama: USAF Historical Division, Air University, 1956), 156.

light enough to carry on jeeps which could be flown into battle with the airborne forces by glider.

Three such systems would ensure avoidance of the communications fiasco at Arnhem.

Although the landing divisions contained small, integral artillery units, First Allied Airborne Army had coordinated with British Second Army for additional guns committed solely to supporting the 6th and 17th Airborne Divisions. These divisions would later be the airborne assault force in Operation VARSITY. Each division was assigned one Forward Observer Unit for direct wireless communication with the supporting artillery of the ground forces. American parties were specially trained to translate fire orders into British format for the Second Army gunners.<sup>26</sup>

Another improvement was the organization of combat control teams. These units, two for each division, maintained liaison with First Allied Airborne Army forward headquarters and incoming transport aircraft. Combat control teams were trained to evaluate and pass on the conditions in the landing area, specifically weather and enemy resistance. Also, they would relay vital information to the airborne commanders concerning changes to the timing or location of planned resupply drops.<sup>27</sup> In other words, the combat control teams would provide a communication vehicle, absent at Arnhem, between the troop carrier aircraft and the airborne units on the ground.

The final communications innovation accompanying the airborne troops was the forward visual control post. The RAF's 38 Group organized these units specifically to control close air support fighter aircraft working in cooperation with the airborne forces. Three teams were trained just prior to Operation VARSITY, one for each division with one in reserve. These inexperienced units would 'prove to be very valuable' in the First Allied Airborne Army's final assault.<sup>28</sup>

Brereton and his staff instituted a systematic training program for their transport and glider pilots as well as the remaining uncommitted airborne units after Operation MARKET-GARDEN.

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<sup>26</sup> Headquarters British Army of the Rhine, *Battlefield Tour: Operation PLUNDER, Operations of 12 British Corps Crossing the River Rhine on 23, 24 and 25 March 1945* (Germany: HQ British Army of the Rhine, 1947), 24.

<sup>27</sup> Warren, *Airborne Operations*, 164.

<sup>28</sup> *Ibid.*, 164.

This was a considerable achievement since Brereton was under constant pressure to use his troop carrier aircraft in supply missions for the armies on the continent, especially during the Ardennes fighting in December 1944.<sup>29</sup> However by January, IX Troop Carrier Command was able to devote 50,000 flying hours, approximately two-thirds of its total sorties for that month, to flying training. Over forty percent of that time was used for formation flying, a vital skill in large airborne operations. Also, glider towing practice occupied over 9,000 hours; American glider pilots required a minimum of five landings per month.<sup>30</sup>

The First Allied Airborne Army designed an aggressive joint training program for troop carriers and airborne soldiers which included five brigade-sized jump exercises in March. Hampered by unit movements, soldiers and airmen carried out only two of these exercises as planned. Small-scale jumps continued however, and American troop carriers dropped a total of 19,678 paratroops and 26,666 gliders during the training period. Although joint training was not evenly distributed among the American troop carrier groups, most flying units maintained a high level of proficiency.<sup>31</sup>

The RAF units of the First Allied Airborne Army also made a substantial training effort before Operation VARSITY. Although 46 Group devoted ninety percent of its flying time to transport work to the continent, its Dakota crews trained in troop carrier operations at regular intervals. On the other hand, 38 Group was able to devote a considerable amount of time and effort to both training and experimentation in new tactics.

In addition to towing gliders, 38 Group's modified bomber aircraft were able to drop supply canisters from their bomb bays and could even drop small numbers of paratroops. The Stirling and Halifax crews participated in many large scale glider exercises in England prior to Operation VARSITY. They were also continuously engaged in SOE and SAS operations in Norway, Denmark,

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<sup>29</sup> Ibid., 169.

<sup>30</sup> Ibid., 169.

<sup>31</sup> Ibid., 169-170.

Holland and Germany.<sup>32</sup> In order to help maintain proficiency in night navigation, 38 Group also conducted night radar bombing missions against targets on the continent.<sup>33</sup>

The hardest lessons at Arnhem, however, concerned the resupply missions. In Operation MARKET the British 1st Airborne Division recovered less than eight percent of the total tonnage of supplies dropped to them, while 38 and 46 Groups lost 55 aircraft to flak with an additional 320 damaged.<sup>34</sup> Low altitude drop runs at 500 to 600 feet above the ground, the common resupply tactic, accounted for many losses to small arms fire as well as anti-aircraft artillery. Number 38 Group subsequently developed a medium altitude drop technique at 6,000 to 8,000 feet where aircraft would release containers fitted with delayed-opening parachutes.<sup>35</sup> Additionally, airborne soldiers carried Eureka beacons to the drop and landing zones and used its voice transmission capability as a backup communication system to the resupply aircraft.<sup>36</sup> Although 38 Group planned to employ these techniques on the second day of Operation VARSITY, the follow-on drops were not needed.

The First Allied Airborne Army's final training efforts concerned the American glider pilots. Unlike their British counterparts from the Glider Pilot Regiment, American glider pilots were assigned to the Dakota squadrons of IX Troop Carrier Command and were not trained infantrymen.<sup>37</sup> British glider pilots were mostly volunteers from the infantry and were able to fight alongside the airborne soldiers once on the ground;<sup>38</sup> the glider pilots at Arnhem were a valuable asset to the 1st Airborne Division when outside reinforcement became impossible. However, American glider pilots possessed limited fighting skills and often required protection from airborne soldiers.

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<sup>32</sup> David Lewis, interview with author, 17 May 1995; and HQ No. 38 Group, 'Paper on Airborne Operations', III:51.

<sup>33</sup> Ibid., III:51.

<sup>34</sup> Hilary St. George Saunders, *Royal Air Force 1939-1945, Volume III: The Fight Is Won* (London: HMSO, 1954), 195; and HQ FAAA, 'Operations in Holland,' Appendix I: 3-4. Also, 98 American aircraft were destroyed.

<sup>35</sup> HQ No. 38 Group, 'Paper on Airborne Operations', III:44-46.

<sup>36</sup> Ibid., III:47.

<sup>37</sup> Major Ronald M. Buffkin, 'Assault Gliders: A World War II Phenomena,' *Military Review* 72, no. 7 (July 1992): 80.

<sup>38</sup> Bill Jones, interview with author, 26 April 1995.

To remedy this deficiency, soldiers from the US 17th Airborne Division trained American glider pilots in infantry tactics and organized them into fighting units for post-landing combat. They were also issued basic infantry equipment, a necessity overlooked in previous operations. After landing, glider pilots would assist in unloading and then move off to their designated assembly areas. The airborne divisional commander could then use these men for guard duty and supply collection. The glider pilots were not to be committed to battle 'except in extreme emergency,' since 'Airborne Army had not been convinced that trained pilots were as expendable as riflemen.'<sup>39</sup>

On 17 March, less than one week prior to Operation VARSITY, the First Allied Airborne Army conducted their final exercise which was codenamed TOKEN. In this rehearsal, commanders and pilots tested communications, navigational aids and tactics using only a skeleton force of aircraft; each nine-ship formation was represented by only the flight leader and his assistant. Troop carrier aircraft flew the entire planned route until over Wavre, at which point they returned to their airfields. No paratroops were dropped and only two gliders - with a single combat control team - were landed. The exercise was an overall success, however a few improvements were required. Land-line communications between 38 Group and First Allied Airborne Army headquarters failed, and certain navigational aids tended to fade along the route of flight. These shortcomings were promptly repaired. Additionally, Williams decided that troop carrier formations would adhere to precise indicated airspeeds instead of relying on timing-based navigation. This measure would negate any problems caused by unexpectedly strong winds along the route.<sup>40</sup>

The First Allied Airborne Army instituted important changes in unit locations, command arrangements, communications and tactics to ensure that the mistakes of Operation MARKET would not be repeated. The training program was designed to enhance combat effectiveness in any subsequent airborne operation. The following chapter will address the details of planning and

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<sup>39</sup> Warren, *Airborne Operations*, 170; and see HQ FAAA, 'Report on Operation Varsity,' Appendix X:1-4.

<sup>40</sup> Warren, *Airborne Operations*, 170.

executing the airborne portion of what John Pimlott calls World War Two's 'last great battle of the war in the west': the crossing of the Rhine River into Germany.<sup>41</sup>

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<sup>41</sup> John Pimlott, 'The Crossing of the River Rhine, 1945.' ed. David G. Chandler, *Great Battles of the British Army: As Commemorated in the Sandhurst Companies*, with a foreword by His Royal Highness Field Marshal The Duke of Edinburgh KG,KT (London: Arms and Armour Press, 1991), 231.



## CHAPTER 3

### OPERATION VARSITY: A CASE STUDY

#### The Situation on the Rhine, March 1945

By early spring of 1945, the Allied forces in northwestern Europe were ready to cross the Rhine river into Germany. The salient created during the Battle of the Bulge had been reduced - largely with the help of four airborne divisions of the First Allied Airborne Army acting in the infantry role - and three Allied Army Groups were

poised to strike at any chosen location. The broad outline plan for the crossing consisted of three main thrusts. In the south, Patton's US Third Army, with its southern flank protected by the US Seventh Army, would drive east from Mainz towards Frankfurt. In the center, Hodges' US First Army was to break out from its Remagen bridgehead, south of Cologne, eventually turning north to envelop the Ruhr industrial area. Finally, Montgomery's Twenty-first Army Group would cross the Rhine north of the Ruhr

near Wesel with the Canadian First, British Second and US Ninth Armies.

This attack would complete the envelopment of the Ruhr from the north and open the North German Plain to Allied armored forces.

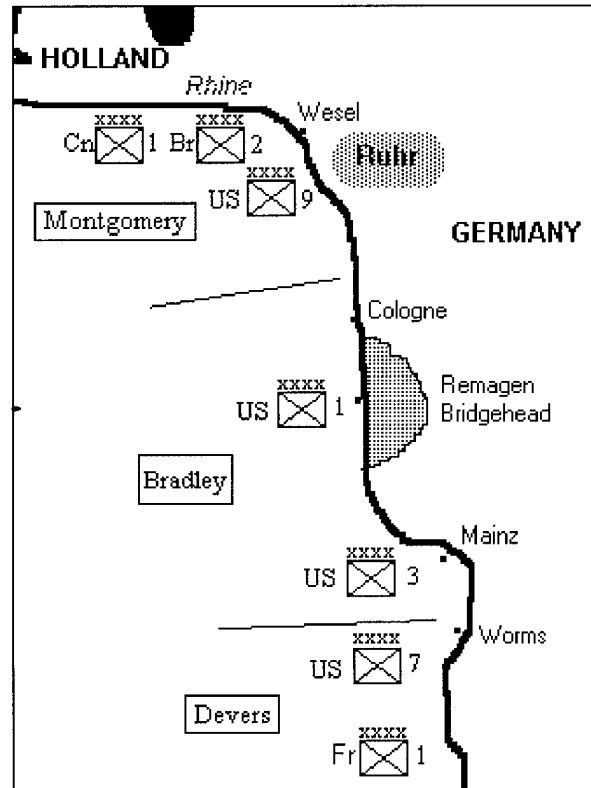


Figure 2. Northwest Europe, March 1945.

In terms of logistical support, numbers involved and strategic importance, Montgomery's northern thrust was to be the main attack of the three operations.<sup>1</sup> For this reason, the First Allied Airborne Army was once again committed to supporting a British Second Army attack, this time called Operation PLUNDER. With two US Ninth Army divisions in support south of Wesel, two British divisions and a Commando brigade were to make a crossing of the Rhine on the night of 23/24 March at Rees, Xanten, and Wesel. On the morning of 24 March the British 6th Airborne and the US 17th Airborne Divisions were to be dropped near the Diersfordter Wald, north of Wesel, to disrupt

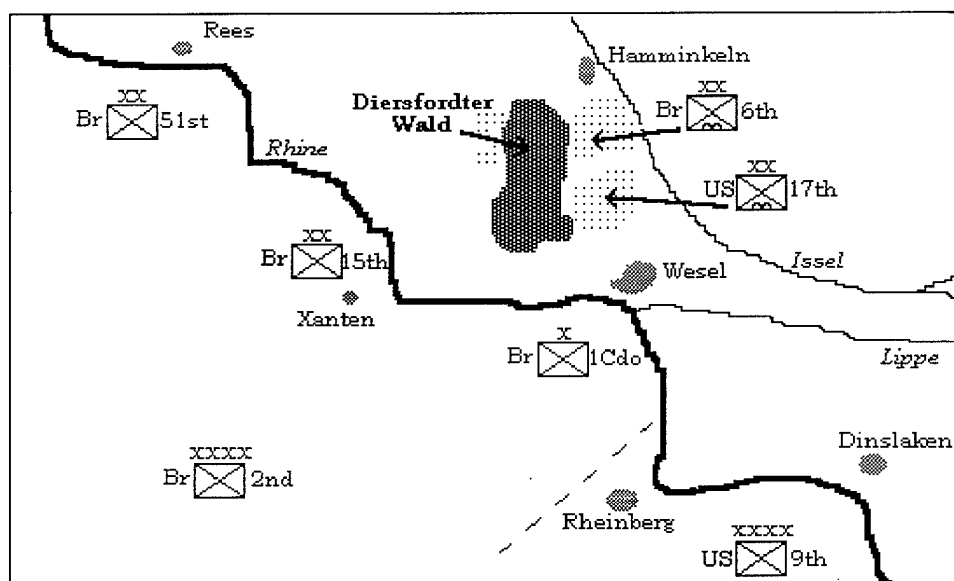


Figure 3. Operation VARSITY, March 1945.

German counterattacks and seize vital crossings across the Issel River, an additional water obstacle east of the Rhine. This First Allied Airborne Army share of the attack was codenamed Operation VARSITY. Additionally, Operation PLUNDER and Operation VARSITY would enjoy the direct support of British Second Tactical Air Force, US Ninth Air Force, Fighter Command and the strategic bombers and fighter escorts of RAF Bomber Command and US Eighth Air Force.

According to a 38 Group after action report dated 20 May 1945, Operation VARSITY was the 'most interesting of all the major airborne operations attempted because it was the first operation

<sup>1</sup> HQ SHAEF, *Report by the Supreme Commander*, 118.

in which determined efforts were made to incorporate a number of lessons learnt from previous operations and from known enemy counter measures.<sup>2</sup> First Allied Airborne Army planners had access to captured German documents which outlined defensive measures against airborne assault. According to these reports, German defenders would improve air raid warning systems, preselect likely Allied drop zones, sight weapons against these areas and form mobile patrols to 'aggressively counter landings' within twenty minutes.<sup>3</sup> It was also generally known that German anti-aircraft gunners were required to remain at their posts at all times, sleeping next to their guns at night.<sup>4</sup> Tactics were developed to deal with these threats.

This chapter will demonstrate the tremendous impact of lessons learned from Operation MARKET and expected German resistance on almost every planning decision for Operation VARSITY. It will also illustrate the resultant change in tactical doctrine for the First Allied Airborne Army's employment.

#### Command and Control Arrangements

According to Russell F. Weigley, Montgomery insisted on a massive set-piece offensive - almost on the scale of the Normandy landings - for his northern Rhine crossing effort which was to include an airborne assault.<sup>5</sup> He left the detailed planning and coordinating of Operation VARSITY to three general officers: General Dempsey of British Second Army, Lieutenant General Brereton of First Allied Airborne Army and Air Marshal Coningham of 2nd Tactical Air Force, RAF. Indeed close cooperation between ground, airborne and air forces would be needed to avoid the failures of MARKET-GARDEN. Also, Montgomery emphasized that he wanted General Ridgeway and his US

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<sup>2</sup> HQ No. 38 Group, 'Report on Operation VARSITY', 20 May 1945, 20.

<sup>3</sup> Ibid., 20-21.

<sup>4</sup> Gavin, *Airborne Warfare*, 132.

<sup>5</sup> Russell F. Weigley, *Eisenhower's Lieutenants: The Campaign in France and Germany 1944-1945* (London: Sidgwick & Jackson, 1981), 647.

XVIII Airborne Corps Headquarters to command the airborne forces committed to VARSITY.<sup>6</sup>

General Richard Gale had replaced General Browning as Deputy Commander of First Allied Airborne Army and Commander of the British Airborne Corps in December 1944.

Since the airborne forces were to assist the Second Army crossing, General Dempsey defined Operation VARSITY's broad objectives. The main features of the operation were settled during the first week in March 1945, although Brereton's headquarters had completed a staff study of a similar proposed operation as early as November 1944. The Diersfordter Wald, a wooded area between three and five miles east of the Rhine, overlooked the planned bridging areas of the assaulting ground troops. Since German artillery in this wood could easily rake crossing attempts during daylight, the airborne forces were given the task of capturing this area. Also, several small bridges across the Issel River, only a few miles beyond the Rhine, had to be seized immediately to prevent German reinforcements from moving west and to ensure the Allied advance to the east. Finally, the generals decided to ignore past custom and planned to land the airborne troops **after** the ground assault had commenced. This measure would keep the landing paratroops and gliders clear of the initial artillery bombardment, provide some amount of tactical surprise and negate the still-impressive German night fighter threat.<sup>7</sup> Expecting fierce German resistance, both Montgomery and Dempsey considered the airborne assault vital to the overall operation and were prepared to postpone the offensive up to five days in the event of poor weather.<sup>8</sup> The airborne divisions were to be removed from the fighting within six days of the assault.<sup>9</sup>

In February the Air Staff of SHAEF also finalized a general plan for coordinating the actions of the various air forces involved in Operation VARSITY. Once again, the experience gained from MARKET-GARDEN influenced a major change in policy; Coningham's 2nd TAF, the organization

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<sup>6</sup> Ibid., 647.

<sup>7</sup> Ibid., 648; and Warren, *Airborne Operations*, 161.

<sup>8</sup> Brereton, *Diaries*, 397 and 'The Airborne Army,' lecture to the Air War College, 19 February 1947, 1; Warren, *Airborne Operations*, 160.

<sup>9</sup> Gavin, *Airborne Warfare*, 133.

responsible for supporting Dempsey's advance, would have operational control of all air units directly committed to PLUNDER and VARSITY including troop carriers, escort fighters, and both tactical and strategic bombers. The overall air plan consisted of an initial interdiction campaign to isolate the Ruhr and the crossing area, harassment bombing of defending German troops and finally air operations directly supporting the river crossings and the airborne assault. Both Brereton and Coningham would share the responsibility for coordinating troop carrier forces with their support missions and would together decide on cancellation or postponement if necessary.<sup>10</sup> After many changes caused by the fluid situation at the front, Eisenhower set the target date of PLUNDER and VARSITY for 24 March.

#### The Troop Carrier Plan

In his cover letter accompanying the Operation MARKET-GARDEN after action report, Brereton commented that 'future planning should provide for a lift sufficient to drop two airborne divisions initially to exploit fully the surprise achieved. Dependence on a secondary lift to accomplish the objective will invite serious consequences.'<sup>11</sup> For this reason, VARSITY would require every available troop carrier aircraft to land most of the US 17th and British 6th Airborne divisions in one lift. The airborne forces would be employed in a purely tactical role, directly supporting the PLUNDER crossings and linking up with the advancing ground forces within hours after landing. The troop carrier plan was designed to facilitate this endeavor by providing a maximum lift of troops and equipment in a very short time span to well-chosen drop and landing zones.

As expected, Brereton chose Major-General Paul Williams of US IX Troop Carrier Command to oversee the planning and execution of flying the airborne troops into battle. Williams in turn delegated operational control of troop carrier missions flown from England to Air Vice Marshal J.R.

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<sup>10</sup> Warren, *Airborne Operations*, 159.

<sup>11</sup> Brereton, Cover Letter to HQ FAAA, 'Report on Operations in Holland.'

Scarlett-Streatfield, commander of 38 Group, RAF. William's command would employ 226 C-47's and 72 C-46's for paratroop transport and a further 610 C-47's to tow 906 'Waco' gliders to bring the US 17th Airborne Division across the Rhine. In order to increase carrying capacity, half of the C-47 tug force would pull two gliders simultaneously; this technique, called double-tow, had never been used successfully in combat. American C-47 pilots had trained in double-tow during the winter and had had few problems.<sup>12</sup> Major-General E.L. Bols' British 6th Airborne Division was allocated 243 American C-47's and 440 RAF aircraft from 38 and 46 Groups. All of the British aircraft would be used to tow the 440 gliders of the 6th Airborne. This RAF 'maximum effort' was made possible only after Scarlett-Streatfield appealed directly to the Air Ministry for additional Stirling and Halifax aircraft for his group. Also, all training aircraft and available aircrews were to be used in this operation.<sup>13</sup>

Flight routes to the assault area were kept simple using obvious landmarks for navigational checkpoints. Formations based in England and France would assemble into one massive air armada over Wavre, southeast of Brussels. From that point, the troop carriers would fly to the drop and landing zones in three very concentrated lanes. These arrangements helped escorting fighters perform their duties and provided for a minimum time to release the paratroops and gliders. For example the 6th Airborne would require only sixty-three minutes to land its entire complement of soldiers.<sup>14</sup> The troop carrier plan thus embodied Brereton's desire to achieve surprise through dropping a large force in a concentrated period of time.

Finally, Ridgeway's headquarters and the troop carriers coordinated a realistic and effective drop and landing zone plan designed to minimize the danger of known German preparations and avoid a repetition of the problems encountered at Arnhem. The general landing area was north of Wesel between the Diersfordter Wald and the Issel River. As mentioned earlier, Ridgeway's objectives

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<sup>12</sup> Warren, *Airborne Operations*, 158.

<sup>13</sup> HQ No. 38 Group, 'Report on Operation VARSITY,' 7.

<sup>14</sup> *Ibid.*, 21.

were to clear the Diersfordter Wald, capture the town of Hamminkeln and seize the bridges over the Issel.<sup>15</sup> In order to avoid German defenses, paratroops would land just east of the wood, form up and then immediately go into action. The glider force assaulting the Issel crossings were to bypass open fields, the expected landing area, and land their gliders within yards of their objectives. In other words, these tactical landings relied on small units taking individual objectives.<sup>16</sup> Daylight landings would facilitate needed accuracy in addition to avoiding the *Luftwaffe* nightfighter threat. Since surprise was considered paramount, pathfinders - paratroops normally dropped early to set up visual signals for subsequent landings - would not be employed prior to the main force assault.<sup>17</sup>

Airborne planners reaped other benefits from this type of operation. Since the drop zones were within range of Second Army's medium artillery, the airborne forward observer units would be able to call in supporting fire almost immediately after landing. Also, because of the short distances involved, advancing ground troops would be able to reinforce the airborne divisions by the end of the first day. Finally, a resupply mission, flown by US Eighth Air Force Liberator bombers, would drop food and ammunition within one hour of the airborne landings. An additional resupply effort would be available of the second day if needed. Overall, the troop carrier arrangements were bold, realistic and thoroughly planned.

#### The Air Support Plan

As previously mentioned, the first step of the overall air plan for the northern Rhine crossings was to isolate the Wesel area from outside reinforcement by interdicting supply centers and transportation routes. Since Wesel was located at the northern end of the Ruhr, Germany's chief industrial zone and therefore prime target for strategic air forces, the US Eighth Air Force and Bomber

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<sup>15</sup> HQ FAAA, 'Report on Operation VARSITY,' 2.

<sup>16</sup> HQ No 38 Group, 'Report on Operation VARSITY,' 21-22.

<sup>17</sup> *Ibid.*, 21. Instead, pathfinders constituted the first 'sticks' to jump with the divisions.

Command naturally agreed to cooperate in this program. In addition to attacking lines of communication, strategic bombers would destroy German airfields, and Bomber Command would attack Wesel on the night of the initial ground assault.

As far as the airborne soldiers and their troop carriers were concerned, there were two primary threats to the success of Operation VARSITY. The first of these potential dangers was from the *Luftwaffe*. If the Germans conducted an air attack on the troop carrier airfields during the marshaling period, Operation VARSITY would be doomed to failure even before launching. For this reason, anti-aircraft batteries were installed at every troop carrier base in France while the US Ninth Air Force devoted night-fighter patrols to protect these airfields. Also any German aircraft, especially approximately 80 new jet fighters, which broke into the troop carrier formation on its way to the drop zones would be able to decimate the densely packed - and defenseless - transport aircraft. In addition to the strategic bomber attacks on airfields on 21 March and 24 March, RAF fighters of 2nd TAF planned to patrol directly above jet bases during the day of the assault. The primary defense against the *Luftwaffe*, however, would be from a massive escort effort. Prior to reaching the Rhine and on the return flight, troop carriers from England would be escorted by an entire group of fighters from RAF Fighter Command while the US Ninth Air Force guarded transports from France. During the landings, fighters of 2nd TAF would provide cover over the drop and landing zones. Finally, fighter aircraft from US Eighth Air Force, normally used to escort strategic bombers, would patrol most areas east of the Rhine to intercept any enemy fighters from other parts of Germany. In order to aid this escort effort, diversionary bomber raids against Berlin, Munich and other areas would hopefully keep German air defense fighters away from the troop carriers.<sup>18</sup>

Although the *Luftwaffe* was a potent threat to transporting the airborne force, VARSITY planners feared German flak more than any other weapon.<sup>19</sup> The Ruhr had been a target of strategic bombers for many years, and consequently the Germans had built considerable anti-aircraft defenses in

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<sup>18</sup> For supporting air operations see Warren, *Airborne Operations*, 166-173.

<sup>19</sup> *Ibid.*, 167.



the area. Also, Wesel was located along an obvious axis of advance into Germany; this notion was confirmed by intelligence reports of an additional flak build-up in mid-March.<sup>20</sup> Thus in addition to artillery bombardments on known German flak positions, medium bombers would also attack anti-aircraft artillery sites starting one hour before the airborne landings. One half-hour later, fighter bombers would attempt to destroy any surviving guns, and these patrols would be maintained over the area until the afternoon.

With planning completed and crews briefed, the First Allied Airborne Army and the supporting air forces were well prepared for their task. After receiving a favorable weather forecast, Brereton issued orders at 1630 hours on 23 March 1945 that Operation VARSITY be carried out as planned.

#### Execution of Operation VARSITY

After an artillery bombardment by over 5,000 guns and rocket projectors and behind a 50-mile long smoke screen, elements of Montgomery's initial attack wave began their crossing of the Rhine in assault boats and 'swimming tanks' at 2100 hours on 23 March 1945. As the troopers of 1 Commando Brigade completed regrouping on the east bank of the Rhine, they stopped in the early morning darkness to witness an RAF Bomber Command raid of 195 Lancasters and 23 Mosquitoes flatten Wesel. Not a single British bomber was lost.<sup>21</sup> The elite soldiers then went on to clear dazed German defenders from the rubble as similar crossings north of Wesel continued.

During the morning hours of 24 March, the troop carrier stream approached the assault area untouched by enemy fighters and unhindered by navigational problems. Near the Rhine, however, the Second Army's smoke screen had not dissipated as planned, and visibility decreased to less than a mile in some areas. Nevertheless, pilots used electronic navigational aids for the final few miles and

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<sup>20</sup> Ibid., 167.

<sup>21</sup> Martin Middlebrook and Chris Everitt, *The Bomber Command War Diaries: An Operational Reference Book, 1939-1945* (London: Viking, 1985), 687.

dropped their paratroops and gliders with relatively good accuracy. Except for one American regiment, all units arrived in their correct landing areas beginning just before 1000 hours.<sup>22</sup> Despite the supreme anti-flak effort, damage from German anti-aircraft fire became heavy over the drop and landing zones after the initial element of surprise was lost. First Allied Airborne Army lost 46 American and 7 British troop carrier and tug aircraft, a loss ratio of 5.0 and 1.7 percent respectively.<sup>23</sup> Additionally, German flak brought down over fifty gliders. Between 1310 and 1330 hours, 240 B-24 Liberators of 2nd Air Division, US Eighth Air Force, released almost 600 tons of supplies onto the drop zones. Because of their low altitude - of less than 500 feet - 15 bombers were shot down.

Although landing casualties were high, the airborne forces quickly formed up and accomplished their missions. British glider-borne infantry landed within a few yards of their objectives, two road bridges over the Issel River, and speedily took them. By the afternoon, most of the Diersfordter Wald had been cleared, its defenders overwhelmed by attacks from three different directions. At noon elements of the US 17th Airborne Division linked up with the advancing British 1 Commando Brigade and an hour later met leading elements of the British 15th Infantry Division. British 6th Airborne, further north, linked up with 15th Division by 1530 hours. By the end of the 24th, resistance of the approximately 10,000 defending German troops in the Diersfordter Wald area had been shattered.<sup>24</sup> Both airborne divisions remained in combat continuously, leading the advance to the Elbe until the fighting stopped in May.

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<sup>22</sup> Gavin, *Airborne Warfare*, 135.

<sup>23</sup> Warren, *Airborne Operations*, 194.

<sup>24</sup> *Ibid.*, 192.

## CHAPTER 4

### CONCLUSION

The successful Allied Rhine crossings in late March 1945 spelt disaster for the Germans in the west. By 1 April, the US Ninth and First Armies had completed their encirclement of the Ruhr, the two pincers meeting near Paderborn.<sup>1</sup> Meanwhile, Dempsey's Second British Army made its celebrated dash for the Baltic coast while the Americans further south pressed towards Czechoslovakia and Austria. The final German surrender was signed on 8 May.

In his *Supreme Commander's Report*, Eisenhower wrote:

Operation VARSITY was the most successful airborne operation carried out to date, and its brilliant results reflected the great strides made in this aspect of warfare since the landings on D Day, nine months earlier. Much of this was due to the coordination secured by the units of the First Allied Airborne Army. . . . As may be seen from the composition of forces involved, VARSITY was an Allied operation in the fullest sense, and the victory won represented yet another triumph in the annals of Anglo-American cooperation in the common fight.

Additionally, Eisenhower attributed the operation's success to the accuracy of the drops, the successful resupply, and the rapidity of consolidation and tactical surprise achieved by the airborne troops. As the Supreme Commander explained, coordination between various air and ground combat organizations - partly resulting from the establishment of First Allied Airborne Army - greatly enhanced the effectiveness and success of Operation VARSITY and the northern Rhine crossings as a whole.<sup>2</sup>

Captured documents and prisoner interrogations revealed that the Germans had anticipated an airborne attack in the Wesel area. However, the unexpected *mass* and *concentration* of airborne troops overwhelmed the defenders.<sup>3</sup> In fact, the airborne assault contributed very materially 'to the collapse of the German 84th Division, defenders of Wesel, by completely disrupting the division's gun and rear defense areas.'<sup>4</sup> Operation VARSITY succeeded in meeting its objectives of securing the

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<sup>1</sup> Ellis, *Victory*, 319.

<sup>2</sup> HQ SHAEF, *Report by the Supreme Commander*, 123.

<sup>3</sup> Warren, *Airborne Operations*, 192.

<sup>4</sup> HQ British Army of the Rhine, *PLUNDER*, 53.

high ground of the Diersfordter Wald and preventing German reinforcements from counterattacking the bridgehead. Indeed, had the airborne assault not accomplished these aims, Operation PLUNDER may have bogged down on the first day. The victory did not come without a cost. Aircraft losses were moderate, and the new C-46 demonstrated its susceptibility to ground fire. Mostly caught towards the end of the troop carrier stream, these aircraft suffered 28 percent losses.<sup>5</sup> Also, out of approximately 16,000 soldiers landed with the two airborne divisions, over 2,700 were casualties. However the airborne assault ensured a firm footing on the east bank of the Rhine for Dempsey's Second Army.

Operation VARSITY demonstrated the triumph of superior overall planning and command and control arrangements of the Allied forces. Coordination of the air campaign led to a complete neutralization of the Luftwaffe in their own airspace. Although a few light guns escaped detection, the overall flak suppression effort was successful.

To focus on the First Allied Airborne Army's achievement, the problems encountered during Operation MARKET were for the most part corrected. Troop carriers from twenty-three different bases converged to deliver the largest single-day airborne assault of the war. As James Gavin relates, Brereton, Dempsey and Ridgeway employed five important innovations including landing the airborne troops after the ground assault began, using drop zones within medium artillery range of advancing ground forces, lifting the entire airborne force in one complete drop, resupplying the force within hours of the initial assault and landing troops on or very near to their objectives.<sup>6</sup> Brereton's intensive training program resulted in accurate drops with excellent concentration, enabling the airborne troopers to form up quickly and press on to their objectives immediately. American glider pilots performed well under fire, beating off a German counterattack as though they were veterans.<sup>7</sup> Finally, dependable communications with close air support fighters and Second Army artillery provided lightly-armed airborne units with concentrated fire support. For example, within two hours of

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<sup>5</sup> Ibid., 194.

<sup>6</sup> Gavin, *Airborne Warfare*, 132-135.

<sup>7</sup> Warren, *Airborne Operations*, 191.

landing, a forward visual control team was directing fighters to targets facing the 6th Airborne Division. Also, radio communications between IX Troop Carrier Command Post, combat control teams and aircraft earned 'excellent' ratings in the after-action report.<sup>8</sup>

Operation VARSITY was the culmination of almost two years of doctrinal evolution for the airborne forces. The first multi-divisional combined assault in the European Theater was of course Operation NEPTUNE, the night airborne drops preceding the Normandy landings. This operation was designed to secure the flanks of the landings by seizing vital transportation centers and harassing

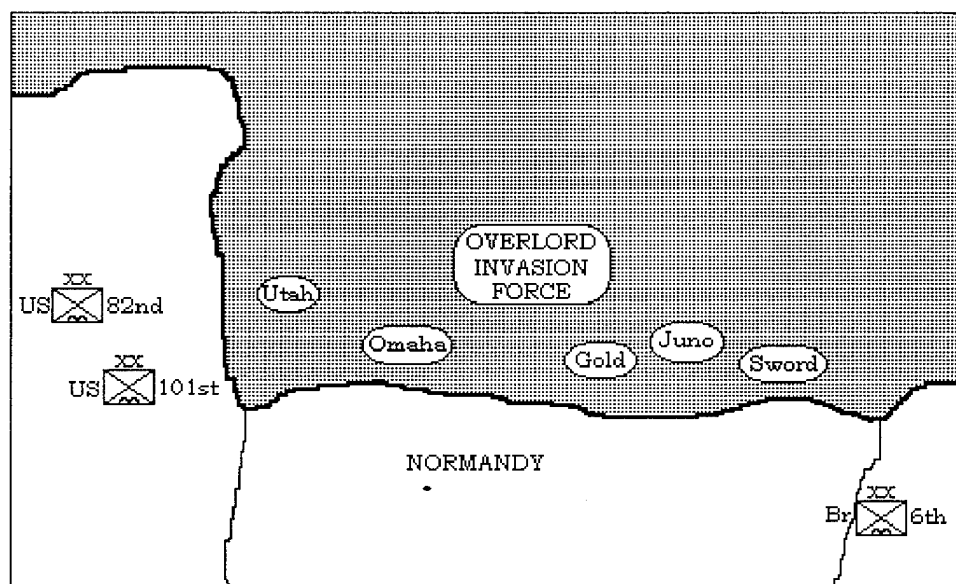


Figure 4. Operation NEPTUNE, June 1944.

German reinforcement efforts. Operation MARKET-GARDEN proposed the first Allied strategic use of airborne units to seize water crossings along a deep corridor upon which a ground assault would travel. This failed because of the dependency of lightly-armed airborne units on air support and air resupply, both in turn dependent on good weather.

The final Allied airborne operation in Europe reverted to the tactical use of paratroops and glider-borne soldiers. The First Allied Airborne Army meticulously planned a single-day assault, one that was therefore dependent on *only one* day of good weather. As it turned out, the weather on 24

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<sup>8</sup> HQ FAAA, 'Report on Operation VARSITY,' 31.

March 1995 was better than expected. Although not flawless, Operation VARSITY achieved all its aims. This feat came only after the realization of earlier mistakes and the application of past experience at almost every stage of planning.

## BIBLIOGRAPHY

### 1. Unpublished Documents\*

Brereton, Lewis H. 'The Airborne Army.' Transcript of lecture delivered to the Air War College, Maxwell Field, Alabama, 19 February 1947. Air Historical Branch File 30.

Headquarters First Allied Airborne Army. 'Report on Operations in Holland, September - November 1944.' 22 December 1944. AHB File 30.

\_\_\_\_\_. 'Report on Operation Varsity.' 19 May 1945. AHB File 28.

\_\_\_\_\_. Translation of captured German document entitled 'Report on experience gained in the battle with and defeat of the First British Airborne Division in the western Arnhem sector.' 1 October 1944. AHB Airborne Assault Operations Binder, Volume II.

Headquarters No. 38 Group RAF. 'Paper on Airborne Assault Operations' May 1945. AHB AAO Binder, Volume I.

\_\_\_\_\_. 'Report on Operation Varsity.' 20 May 1945. AHB AAO Binder, Volume II.

US Army Air Forces Board. 'Long Range Study of Airborne Operations.' 29 April 1944. AHB File 29.

### 2. Interviews with Author

Jones, Bill. Northwood, Middlesex, 26 April 1995. Former RAF glider pilot instructor.

Lewis, David. Uxbridge, Middlesex, 17 May 1995. Former Stirling tail-gunner, No 38 Group, RAF.

### 3. Memoirs and Other Contemporary Sources

Brereton, Lewis H. *The Brereton Diaries: The War in the Air in the Pacific, Middle East and Europe, 3 October 1941 - 8 May 1945*. New York: William Morrow and Company, 1946.

Bryant, Arthur. *Triumph in the West, 1943-1946: Based on the Diaries and Autobiographical Notes of Field Marshal The Viscount Alanbrooke*. London: Collins, 1959.

Eisenhower, Dwight D. *Crusade in Europe*. New York: Doubleday, 1948.

Frost, John. *A Drop Too Many*. London: Cassell, 1980.

Gavin, James. *Airborne Warfare*. Washington: Infantry Journal Press, 1947.

\_\_\_\_\_. *On To Berlin: Battles of an Airborne Commander, 1943-1946*. London: Leo Cooper, 1978.

Hobbs, Joseph Patrick. Ed. *Dear General: Eisenhower's Wartime Letters to Marshall*. Baltimore: The Johns Hopkins Press, 1971.

Miller, Victor. *Nothing is Impossible: A Glider Pilot's Story of Sicily, Arnhem and the Rhine Crossing*. Staplehurst: Spellmount Ltd., 1994.

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\* All documents listed are located at the Air Historical Branch Archives, Ministry of Defence, London, UK.

Montgomery, B.L. *Normandy to the Baltic*. London: Hutchinson, 1947.

\_\_\_\_\_. *The Memoirs of Field Marshal the Viscount Montgomery of Alamein*. London: Collins, 1958.

Urquhart, R.E. *Arnhem*. London: Cassell, 1958.

#### 4. Official Histories and Other Officially Commissioned Works

Craven, Wesley Frank and James Lea Cate, gen. eds. *The Army Air Forces In World War II, Volume III: Europe: Argument to V-E Day, January 1944 To May 1945*. Chicago: University of Chicago Press, 1951.

Ellis, L.F. with A.E. Warhurst. *Victory in the West, Volume II: The Defeat of Germany*. History of the Second World War: United Kingdom Military Series, ed. Sir James Butler. London: HMSO, 1968.

Headquarters British Army of the Rhine. *Battlefield Tour: Operation Plunder, Operations of 12 British Corps Crossing the River Rhine on 23, 24 and 25 March 1945*. Germany: HQ British Army of the Rhine, 1947.

Headquarters SHAEF. *Report by the Supreme Commander to the Combined Chiefs of Staff on the Operations in Europe of the Allied Expeditionary Force: 6 June 1944 to 8 May 1945*. London: HMSO, 1946.

Pogue, Forrest C. *The Supreme Command*. United States Army in World War II, gen. ed. Kent Roberts Greenfield. The European Theater of Operations, ed. High M. Cole. Washington: Office of the Chief of Military History, Department of the Army, 1954.

Saunders, Hilary St. George. *Royal Air Force 1939-1945, Volume III: The Fight Is Won*. London: HMSO, 1954.

Warren, John C. *Airborne Operations in World War II, European Theater*. Maxwell Air Force Base, Alabama: USAF Historical Division, Air University, 1956.

#### 5. Secondary Sources

Arthur, Max. *Men of the Red Beret: Airborne Forces 1940 to Today*. London: Warner Books, 1992.

Buffkin, Ronald M. 'Assault Gliders: A World War II Phenomena.' *Military Review* 72, no. 7 (July 1992): 80-82.

Cox, Sebastian. 'Air Power in Operation Market Garden.' three parts, *Air Clues* 39, no. 4 (April 1985): 152-155; 39, no. 5 (May 1985): 191-195; 39, no. 6 (June 1985): 229-231.

Essame, H. *The Battle for Germany*. London: B.T. Batsford Ltd., 1969.

Fuller, John F. 'Market Garden: The Operation That Failed.' *Airlift Operations Review* 2, no. 4 (October-December 1980): 24-28.

Hobson, C.M. 'Arnhem: The Royal Air Force Operation.' two parts, *Air Clues* 48, no. 8 (August 1994): 313-319; 48, no. 9 (September 1994): 355-361.

*Jane's Fighting Aircraft of World War II*. Foreword by Bill Gunston. London: Bracken Books, 1989.



- Keegan, John. *Six Armies in Normandy: From D-Day to the Liberation of Paris*. New York: Penguin, 1982.
- Middlebrook, Martin. *Arnhem 1944: The Airborne Battle*. London: Viking, 1994.
- Middlebrook, Martin and Chris Everitt. *The Bomber Command War Diaries: An Operational Reference Book, 1939-1945*. London: Viking, 1985.
- North, John. *North-West Europe 1944-5: The Achievement of 21st Army Group*. London: HMSO, 1977.
- Pimlott, John. 'The Crossing of the River Rhine, 1945.' ed. David G. Chandler, *Great Battles of the British Army: As Commemorated in the Sandhurst Companies*. With a Foreword by His Royal Highness Field Marshal The Duke of Edinburgh KG,KT. London: Arms and Armour Press, 1991.
- Pogue, Forrest C. *George Marshall: Organizer of Victory*. New York: Viking Press, 1973.
- Powell, Geoffrey. *The Devil's Birthday: The Bridges at Arnhem, 1944*. New York: Franklin Watts, 1984.
- Weigley, Russell F. *Eisenhower's Lieutenants: The Campaign in France and Germany, 1944-1945*. London: Sidgwick & Jackson, 1981.
- Whiting, Charles. *Bounce the Rhine*. New York: Stein and Day, 1985.
- Wilkerson, Lawrence B. 'Low-altitude Mass Tactical Operations.' *Military Review* 61, no. 7 (July 1981): 24-32.